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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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21971	7590	03/05/2004	EXAMINER	
WILSON SONSINI GOODRICH & ROSATI			DOAN, JENNIFER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/894,853	Applicant(s) VAGANOV, VLADIMIR	
	Examiner Jennifer Doan	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18-33, 36-50, 53-56 and 59-67 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 34, 35, 51, 52, 57 and 58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>0802</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings, filed on 06/27/2001, are accepted.

Specification

2. Claims 57 and 58 are objected to because of the following informalities:

Claims 57 and 58 recite the limitation "a movable parts" (In line 4). It is not clear whether the applicant claims one part or multiple parts. Appropriate correction is required.

Applicant's cooperation is requested in correcting any other errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 17, 56 and 65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 recites the limitation "the movable part" in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim. It is not clear what movable part it is referring, since there is no movable part mentioned in the claim 16.

Claim 56 recites the limitation "the components" in line 3. There is insufficient antecedent basis for this limitation in the claim. It is not clear what components it is referring, since there is no components mentioned in the claim 55.

Claim 65 recites the limitation "the control system" in line 5. There is insufficient antecedent basis for this limitation in the claim. It is not clear what control system it is referring, since there is no control system mentioned in the claim 1.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-6, 8-11, 18-27, 29, 30, 36, 37, 44-50, 53, 55, 56, 59, 60, 61 and 63-67 are rejected under 35 U.S.C. 102(e) as being anticipated by Dorscher et al. (U.S. Patent 5,963,682).

Regarding claims 1-6, 8-10, 18, 19, 25-27, 36, 37, 60 and 67, Dorscher et al. disclose (in-figures 1 and 2) an optical switch comprising a plurality of transmitting devices (column 4, lines 55-61) integrated on a single substrate (column 5, lines 25-57),

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each of an individual transmitting device including a directing device (abstract and column 1, line 64- column 2, line 5); a plurality of receiving devices (column 4, lines 55-61); wherein at least a portion of transmitting devices direct output beams from the plurality of transmitting devices to the plurality of receiving devices as shown in figures 1 and 2; wherein the transmitting devices include a plurality of focusing devices (22), each of an optical fiber (16_T) from the plurality of focusing devices being coupled to one focusing device which includes at least one lens (22); further the focusing devices include a micro-collimator and an optical waveguide (column 4, lines 55-61) and further wherein an optical body which is positioned between each focusing device and a distal end of each of an optical fiber of the plurality of transmitting optical fibers (as shown in figures 1 and 2) including a solid, liquid, gaseous and gel optical transparent material (column 3, lines 58-66).

Regarding claims 11, 29 and 30, Dorscher et al. further disclose each directing device is a micro-mechanical device including an optical waveguide (abstract; column 1, line 64- column 2, line 5 and column 3, line 64- column 4, line 2).

Regarding claims 20 and 54, Dorscher et al. disclose (in figure 1) at least a portion of receiving devices are directed to receive the transmitter output beams from the plurality of transmitting devices while focusing the incoming beams into the plurality of optical fibers (16_R) of the plurality of receiving devices.

Regarding claims 21-24, Dorscher et al. disclose (in figures 1 and 2) the optical switch, wherein the plurality of receiving devices includes a plurality of focusing devices, each of an optical fiber of a plurality of receiving optical devices being coupled to at

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least one focusing device; wherein the plurality of receiving devices includes a plurality of directing devices, each of an optical fiber of a plurality of receiving optical devices being coupled to at least one directing device; further the plurality of receiving devices includes a plurality of focusing devices and a plurality of directing devices, wherein each of a focusing device is coupled to a directing device; further wherein each focusing device includes at least one lens.

Regarding claims 44-50, Dorscher et al. disclose wherein each of a transmitting device includes a fiber placement cavity; further at least one transmitter substrate with a plurality of fiber placement cavities, each of a fiber placement cavity corresponding to a transmitting device of the plurality of transmitting devices; wherein one receiver substrate with a plurality of fiber placement cavities, each of a fiber placement cavity corresponding to a receiving device of the plurality of receiving devices; wherein each of a transmitter device includes a focusing device and a directing device positioned adjacent to a fiber placement cavity; wherein each of a receiver device includes a focusing device and a directing device positioned adjacent to a fiber placement cavity; further each of a transmitter device includes a focusing device and a directing device at least partially positioned in a fiber placement cavity; further wherein each of a receiver device includes a focusing devices and a directing device at least partially positioned in a fiber placement cavity as shown in figure 3..

Regarding claims 53 and 55, Dorscher et al. disclose first and second substrates (108, 110, figure 3) including a plurality of fiber placement cavities.

Regarding claim 56, Dorscher et al. do not explicitly disclose a cross-sectional dimension of a fiber placement cavity greater than the size of the components positioned in the cavity. However, Dorscher et al. teach first and second substrates (108, 110, figure 3) including a plurality of fiber placement cavities having the optical components in them as shown in figure 3; therefore, the cross-sectional dimension of a fiber placement cavity would inherently be greater than the size of the components disposed in the cavity.

Regarding claim 59, Dorscher et al. disclose an optically transparent media between transmitting and receiving devices where light beams from said transmitting devices can mutually intersect on their way to corresponding receiving devices as shown in figures 1 and 2.

Regarding claim 61, Dorscher et al. disclose a system of lenses (22) between transmitting and receiving devices as shown in figure 1.

Regarding claim 63, Dorscher et al. disclose a number of transmitting devices are the same as a number of receiving devices as shown in figure 1.

Regarding claims 64-66, Dorscher et al. disclose an optical switch further comprising a control system coupled to the plurality of transmitting devices and plurality of receiving devices, the control system providing control signals that coordinate positioning of transmitting devices and receiving devices; wherein at least one sensor coupled to the plurality of transmitting devices and the control system; and at least one sensor coupled to the plurality of receiving devices and the control system; and further

wherein each of the plurality of transmitting and receiving devices includes at least one photosensitive sensor (figure 3 and column 3, lines 30-55).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 28 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorscher et al. (as cited above).

Dorscher et al. disclose all the limitations of the claimed invention, except for each lens being selected from a regular lens, a GRIN lens, a diffractive grated lens and a Fresnel lens as recited in claims 7, 28 and 62. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a regular lens, a GRIN lens, a diffractive grated lens and a Fresnel lens, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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9. Claims 12-15, 31-33 and 38-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorscher et al. (as cited above) in view of Lemoff (U.S. Patent 6,678,436).

Dorscher et al. disclose all the limitations of the claimed invention, except for the directing devices including an actuator selected from an electro-static actuator, an electromagnetic actuator, a piezoelectric actuator, a thermo-mechanical actuator and a polymer actuator; wherein the polymer actuator is electro-active, optical active, chemically active, magneto active, acousto active and thermally active as recited in claims 12-15 and 31-33. However, these limitations are well known in the art as taught by Lemoff. Lemoff teaches the directing devices includes an actuator with all the above features in column 4, lines 29-51 and column 6, lines 56-64. Such an element would advantageously provide a translation of the lenses to emanate and receive optical beam and be also easier to control and stable the optical switch if power turned off. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Dorscher device with an actuator having the above features. Doing so would be desirable to obtain the better optical switching device.

Dorscher et al. disclose all the limitations of the claimed invention, except for at least a portion of transmitting devices, focusing devices, directing devices and lenses being MEMS devices as recited in claims 38-43. However, these limitations are well known in the art as taught by Lemoff. Lemoff teaches for at least a portion of transmitting devices, focusing devices, directing devices and lenses being MEMS devices in column 4, lines 39-51. Such an element would advantageously provide a

translation of the lenses to emanate and receive optical beam and be also easier to control and stable the optical switch if power turned off. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Dorscher device with a MEMS device. Doing so would be desirable to obtain the better optical switching device.

Obvious Type Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-67 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 4-12 and 14-67 of the copending Application No. 09/893,309.

Although claims 1-67 of the present invention and claims 1, 2, 4-12 and 14-67 of the copending application are not identical, they are not patentably distinct from each other because they essentially recite the same arrangement of an optical switching device. The claims are therefore *not* patentably distinct.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

12. Claims 16, 17, 34, 35, 51, 52, 57 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to disclose or reasonably suggest an optical switch comprising a suspension member provides movement of an optical fiber's distal portion and an elastic deformation member that provides a mechanical coupling between a substrate and a movable part of directing devices.

Conclusion

13. ~~The prior art made of record and not relied upon is considered pertinent to~~
applicant's disclosure. Fatehi et al. (U.S. Patent 6,002,818), Holman et al. (U.S. Patent

6,169,827) and Tanielian et al. (U.S. Patent 6,549,703) disclose an optical switching device.

14. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 08/05/2002, have all been considered and made of record (note the attached copy of form PTO-1449).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Thursday from 6:00am to 3:30pm, second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Jennifer Doan

JD
February 13, 2004

A. Ullah
AKM ENAYET ULLAH
PRIMARY EXAMINER